ARCHITECTURAL CONCRETE

LUME EIGHT NUMBER ONE

The War and ARCHITECTURAL CONCRETE

This is the first issue of ARCHITECTURAL CONCRETE in wartime.

Appearing but four times a year, this publication naturally will not play a role in reporting the spectacular events of the war which have to do with men, guns and battles.

But ARCHITECTURAL CONCRETE, like every other representative of American enterprise, accepts as a privilege new duties and responsibilities involved in the determined effort of this nation to wage an offensive war to final victory.

Specifically, these duties and responsibilities are to aid, in every way possible, the great construction industry in building for war, for increased war production, for protection of the public, for the maintenance of public health, and for the future peace.

Important steps in this direction have already been taken in the seven peacetime years during which ARCHITECTURAL CONCRETE has gone out to the architects, engineers and contractors of this country. This publication has encouraged the use of a new method of building construction and has furthered its development by the designers and builders of the nation. It has recorded the rapid acceptance of this new construction method and reported in the words of architects, engineers and contractors, the advantages of architectural concrete construction which are now recognized as vital to wartime building needs.

It will be one of the purposes of this publication in the following months to report the transition of construction from peace to war, and to point out wherever it appears true, that the economy and rapidity of concrete construction, the abundance of concrete materials, and the minimum requirement for strategic metals inherent in this type of construction make architectural concrete most suitable for vital construction projects.

Whenever it serves a purpose and in no way impairs the security of the nation, information on examples of this new wartime construction will be published. While the material in this issue, prepared by the various authors prior to declaration of war on last December 8, does not reflect directly upon the current situation, it is quite apparent that the Washington Airport, the IBM building and the Iola armory have definite military use. Likewise, the small post office and recreational center at Oglesby, Ill., the recreational facilities at Iola and the small concrete school at Solon Springs, Wis., indicate types of construction that may be necessary in the growing war-industry communities.

Already hundreds of architectural concrete armories, army and navy buildings of every conceivable kind and industrial buildings devoted to production of arms and munitions have been constructed. Others are being built and planned. It is intended to bring you as much information as possible concerning them. Discussion of building types not necessarily of a military or defense nature will be continued for whatever valuable knowledge may be gained from the experiences of many designers and builders in the use of concrete.

The most important fact facing Americans today is the necessity for employing all the resources, talent and experience of the country and the people to win this war. That will be the main purpose of ARCHITECTURAL CONCRETE until there is peace.

PORTLAND CEMENT ASSOCIATION

Architectural
CONCRETE

ublished by PORTLAND CEMENT ASSOCIATION • 33 West Grand Avenue, Chicago, Illinois

Washington National Airport

HOWARD LOVEWELL CHENEY*, A.I.A.

FOR many years there has been an urgent need to construct a modern and adequate airport at the nation's pital, which would compare favorably with the great air minals in Europe, such as Croyden, Le Bourget and mpelhof.

Comprehensive investigations and studies have been card on since 1923 by both the Army Corps of Engineers d the National Capital Park and Planning Commission, ich resulted in the recommending of the Gravelly Point e on the west bank of the tomac River, immediately th of the District, as the ical area for a centrally ated commercial airport, ily accessible to the busiss and government centers d affording ample oppority for future expansion. was also mandatory to ablish a location with a table adjoining area to be veloped for the accommotion of seaplanes. The site the Washington National Airport is also important beuse it is strategically located in relation to the Army's lling Field and the Navy's Air Station directly across e river.

There are but few cities in America where such an opportunity could be found to secure or construct an airport site so advantageously located. The terrain and the natural advantages of the site will make possible the ultimate development of a beautiful park area surrounding the airport. It adjoins the Mount Vernon Memorial Highway and is only 3¼ miles from the center of the city, a 15-minute ride by taxi or automobile.

The project was assigned by the President to the Civil Aeronautics Authority (now the Civil Aeronautics Administration), which had made the final recommendation to him after its own investigations of a number of proposed sites in and around the environs of Washington. They found that the site was aptly named. Under the entire area were strata of sand and gravel, providing a firm foundation; and the river bed, within the range of hydraulic dredges, contained sufficient quantities of the same material to provide for raising runways and other areas well above the level of any known flood. The upland areas provided other material for dry fill. During the CAA's investigations, numerous flights were made over the area, and year-round studies of weather conditions were carried out by the U. S. Weather Bureau. It was found that the approaches to the proposed runways from eight directions were clear and unobstructed for such distances as to provide flight angles of 40 to 1.

Concrete roofed walkways lead to main entrance from both sides.

*onsulting architect, Public Buildings Administration, Washington, C.

Main facade, administration building, National Airport, Washington, D. C. This modern architectural concrete structure is the hub of a truly m design agencies. W. E. Reynolds, commissioner of public buildings; Howard Lovewell Cheney, consulting architect; Louis A. Simon, supervis

The responsibility of the various government agencies involved was placed under the direction of an Interdepartmental Engineering Commission. The Corps of Engineers, with their wide experience in dredging and reclamation operations, were assigned the task of reclaiming the marshes which constituted approximately the entire landing field. Their work also included all dredging of the Potomac River, the grading of the upland area, the field and upland drainage; stabilizing and paving of runways, taxiways, approaches, roads and parking areas; installation of all types of utilities; also the grading of the site for landscaping.

The Public Buildings Administration was made responsible for the preparation of the site plan, the design of all buildings, and the landscaping. The layout of the landing field, including the design and orientation of runways and connecting taxiways, was in charge of the Airport Section of CAA. The pattern of roads and profiles, underpasses and overpasses, general parking and observation parking areas, was assigned to the Public Roads Administration.

The successful results achieved in the planning and designing of the Washington National Airport is an outstanding example of coordination between the architects, the engineering groups, and the aeronautical and technical staffs of the CAA, as well as the airlines. It was indeed fortunate that such cooperation in formulating and developing an adequate airport program was made possible from the very beginning. The theme of the program all the way through has been to create a National Airport which would adequately provide for the needs of the airlines and for private aviation, as well as accommodate the general public, conveniently and efficiently. The Civil Aeronautics Administration early emphasized the importance of making available for visitors ample observation space and parking areas, because the thousands who visit the airport today only for sightseeing become tomorrow's flying enthusiasts and potential airline passengers.

This concerted effort led to the preparation of a master plan, one that would give the nation's capital not only an ideal landing field, but also provide for the fullest utilization of natural advantages possessed by the site in the present and future development of the airport; a plan flexible enough to permit expansion in an orderly manner from initial to final needs with a minimum of alteration and reconstruction. The master plan provides for an extension of the flying field up and down the Potomac River, which will permit a north-south instrument landing runway to be extended to an ultimate length of 8,000 ft. The layout provides for the development and construction of an auxiliary system of

Entrance logg concrete.

Field facade of the administration building. Almost the entire wall area is glazed so that a view of the landing field is possibl

val", modified to fit the surrounding topography.

n developing a master plan and in designing the terminal lding and hangars, considerable research and investiga- were carried on not only in a careful study of the more ent airport work in this country but also abroad. Every ort has been made to incorporate the best features of the rld's most modern air terminals and to add to these a mber of improvements which would contribute substan- ly to the technical and aesthetic success of airport design.

The terminal building and hangars are grouped at the e of a gentle slope rising above the landing field and hin a V-shaped sector, with the terminal building at the x of the sector, and of radial form, 540 ft. long and ft. wide. This was the logical location for the buildings, the arrangement offers the least possible obstruction to ht operations. The circular entrance plaza at the west nt of the terminal building and the approach roads are ½ ft. above the landing field level.

One of the most outstanding features of the terminal lding at the Washington National Airport is the ovation of a two-level system of control, made sible by placing the entrance level for both pass- ers and spectators a full story above the flying d. This permits the use of the entire ground floor ield level for the convenient handling and efficient culation of baggage, air mail and air express. erefore, the passengers and the spectators on the rance floor level above, in no way interfere with vital and rapidly moving field service. Trucks can culate in and out of the airport at the lower level ng the high speed service road which extends ough a tunnel the full length of the building.

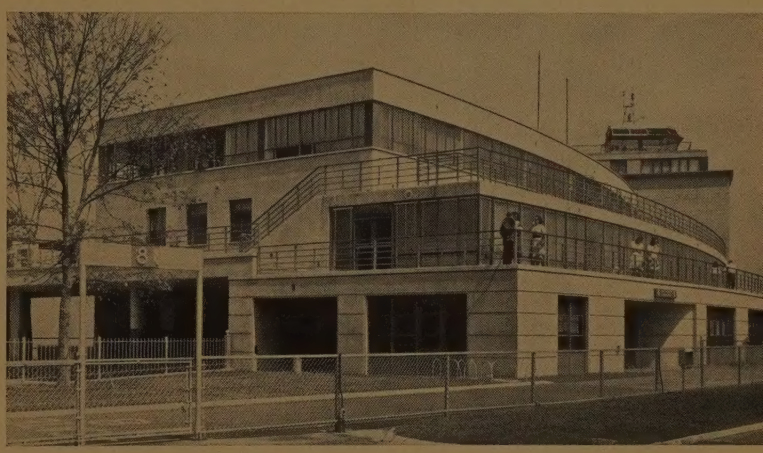
The terminal building and hangars are designed in contemporary style of architecture. They are of dern firesafe construction, adequately air-condi- ned and ventilated. Their streamlined forms sym- ize and express functionally the modern mode of transportation the buildings must serve.

Architectural concrete was appropriately used as exterior building material, both for the terminal lding and hangars. The character of the buildings led for the employment of a material such as con- te, with complete regard for its plasticity and lity to assume flowing, continuous forms. Full ad- ntage was also taken of the material's unique qual- s to produce the outstanding structural features of building—a reinforced concrete cantilever balcony the main waiting room with a 20 ft. 6-in. overhang d a length of 180 ft., and the reinforced concrete flat b floor and roof construction without drop panels.

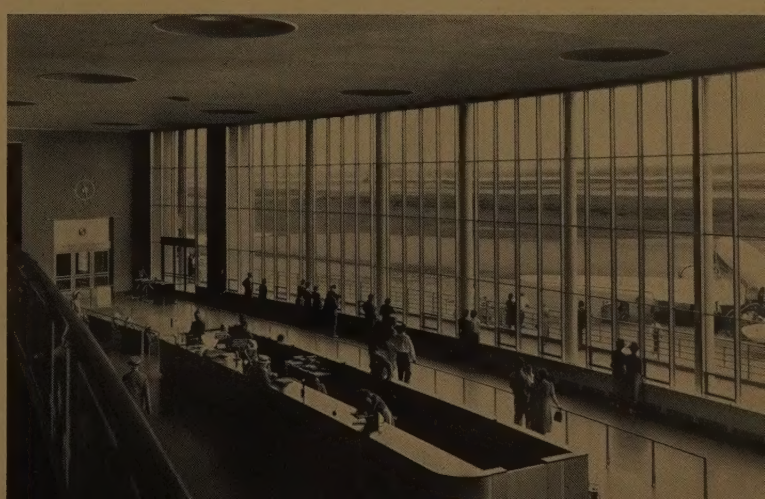
To give scale to the exterior wall surface, 12-in. wide panels of plywood were used for the outside form faces. The slight fins in the concrete from these panels produced a faint uniform horizontal coursing in the walls. Because it was desirable to eliminate any possible cupping of the form sheathing that would result in waves in the wall surfaces, studs were placed on closer centers than normally. Smooth and uniformly even wall surfaces resulted.

Since there were many structural slabs and unexposed concrete walls, it was economical to use exterior wall form sheathing but twice for that purpose. It was thereafter used many times for other work. This assured uniform exteriors without extensive reconditioning of forming material between uses. Excellent results were obtained on the many curved surfaces by cutting the sill to pattern, setting the studs to this line and then sheathing them with the 12x5/8-in. plywood panels. Waste molds were used for cornices and sculptured features. These molds were erected in the forms, with studs and wales made continuous across the molds to

Vantage points for visitors are provided by decks along the entire field side of the building. Separate entrance levels for spectators, passengers and baggage, eliminate all conflict between the public and the rapidly moving field service.



Window areas two stories in height command a view of the landing field from the large waiting room. Spectators and passengers are separated by different levels.



produce continuity of alignment.

A carefully designed concrete mix, controlled at all times for absolute water-cement ratio, was used throughout the building. The material was conveyed in buggies which practically eliminated segregation of the aggregates. Concrete was deposited by means of tremies to prevent spatter on the forms. Both gas-engine and electric vibrators were employed, better results being obtained with the electric vibrators due to the ease with which they could be moved.

Wherever possible, the forms were left in place for 6 days to retain moisture in the concrete for thorough curing. Whenever it was necessary to remove forms before this time, the wall concrete was covered with burlap and kept wet. The final finish for the exterior, which was a portland cement-sand paste applied with burlap, was determined by testing samples of different mixes to see which ones, when applied to the walls and rubbed off with the burlap, resulted in a uniform color consistent with the concrete of the walls. The mixture chosen was 20 per cent white portland cement, 30 per cent grey portland cement and 50 per cent sand passing an 80-mesh sieve. Wall surfaces along the field side of the large two-story 200-ft. long waiting room, also the wall surfaces along the main public stairs and in the post office lobby on the ground floor, are executed in exposed precast aggregate concrete slabs of a warm grey-buff color. Along with the use of precast exposed concrete slabs for interior use, another feature which deserves special mention is the colorful mosaic concrete used for the entrance loggia floor and ceiling, executed by the John J. Earley Studios. The floors in all public spaces are finished in terrazzo of verdantique color. Ceilings are generally of acoustic tile or plaster.

The hangars are placed at the foot of a bluff in a southwest direction 500 ft. away from the terminal building. They are located in an area which offers the least hazard to flight without detracting from the architectural scale of the terminal building. This is important because of the enormous area and bulk of the hangars. When hangar No. 7 has been constructed the total continuous hangar length will be 1,830 ft. The maximum height of the large central hangar is 58 ft. Hangar No. 1 is in operation, with five others under construction and No. 7 projected. The entire structure is continuous and will be symmetrical in design. Hangars Nos. 1 and 7 have arched roofs and are identical in size and appearance. Hangars Nos. 2 to 6 inclusive are flat-roofed, the center one, No. 4, being the largest, with a clear depth of nearly 200 ft. and a width of 230 ft. Total airplane storage space is more than 5 acres. Mechanically operated sliding doors are used throughout. The largest hangar has a door width of 223 ft., with an available clear height of 45 ft., ample to accommodate the Army's latest plane, the B-19, with wing spread of 212 ft.

Between hangars are intermediate shops, 52 ft. wide and 193 ft. long. A shop section, 30 ft. wide, also extends across the hangars at the rear. This continuous shop section along the north side of the hangars has been designed to include an office structure above for the airlines. A continuous second floor of offices is under construction.

The Washington National Airport was opened for complete flight operations on June 16, 1941, and is the first project of its kind to be owned and operated by the United States Government. It is directly in charge of the CAA.

Brig. Gen. Donald H. Connolly, administrator of Civil Aeronautics Administration, has recently said that the CAA "proposes to operate the new airport as a laboratory or model station to develop information which will be helpful to the municipalities throughout the United States also engaged in airport operation".

Continuing, General Connolly said, "I like to think that this example of cooperative enterprise is significant of the spirit in which the new airport will be operated as a national airport to provide satisfactory services for the airlines and for private aviation, the patrons of the airlines, and the general public."

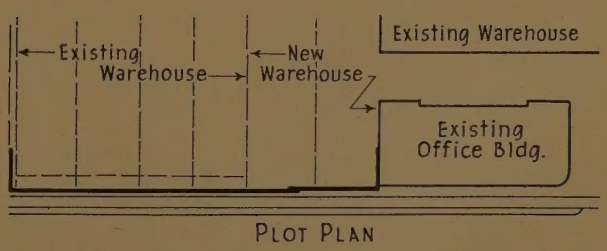
It is hoped that not only will the advanced architectural and engineering techniques developed for this project prove to be a step forward in airport planning but that the aesthetic demands imposed upon this, the Washington National Airport, will be recognized as having been achieved.

Interior walls of the waiting room are finished with precast concrete slabs with exposed aggregate surfaces of a warm buff color. The ceilings are acoustically treated and the floors are verdantique terrazzo.

after views of the transformation performed on the main front of the Seattle Steel Co. buildings by the use of architectural concrete. The Austin Co designed and built the new office and warehouse structures.

Office for Seattle Steel Co.

By Richard Ellis*



Plot Plan

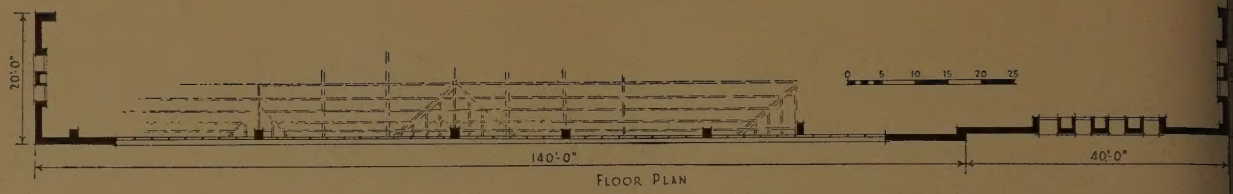
MOST interesting example of architectural transformation and plant enlargement was recently effected by the Austin Co. for the Seattle Steel Co., at Seattle, Wash. The plant is located on what has become one of the most heavily traveled streets of the city and the old buildings, though thoroughly useful and serviceable, were at best more than severely plain in appearance. Additional shop space and new offices being necessary, and an exterior befitting the plant's location and the company's growing importance in Seattle's industrial life being highly desirable, the problem was solved in the manner shown in accompanying illustrations.

In the "before" view is shown the plant as it was two years ago. In making the changes, the sheet, wire and nail warehouse at the right of this picture was moved back from the street and set up on new foundations. The one-story office building was then erected on the vacated ground. This permitted the demolition of the former office building—the small, one-story structure at left of center in the "before" view. In its place, and to the rear, a new warehouse building of structural steel was constructed and this new warehouse and the two old buildings to the north were faced with architectural concrete. The term "faced" should not be misinterpreted as meaning a mere veneer. Both the old and new buildings were structurally connected to the concrete and made structural use of it.

The concrete walls, which were smooth-formed, are finished with a fine-textured cement dash.

The design of the building expresses its function, which

*Acting manager, The Austin Co., Seattle, Wash.



FLOOR PLAN

is the keynote of modern architecture. The occupancy of the building is clearly shown and the office part is distinguishable from the warehouse but the two are combined to produce a unified, pleasing appearance.

The simplicity and moderate cost of the construction is apparent. Equally apparent is the great improvement in the plant's appearance. It now has a fresh, well set-up, we kept look that cannot fail to create a favorable impressi on the public.

This transformation illustrates how markedly the appea ance of a community can be benefited and enhanced by t civic-mindedness of its individual citizens and corporatio

Post Office for Oglesby, Illinoi

By John F. McCann*

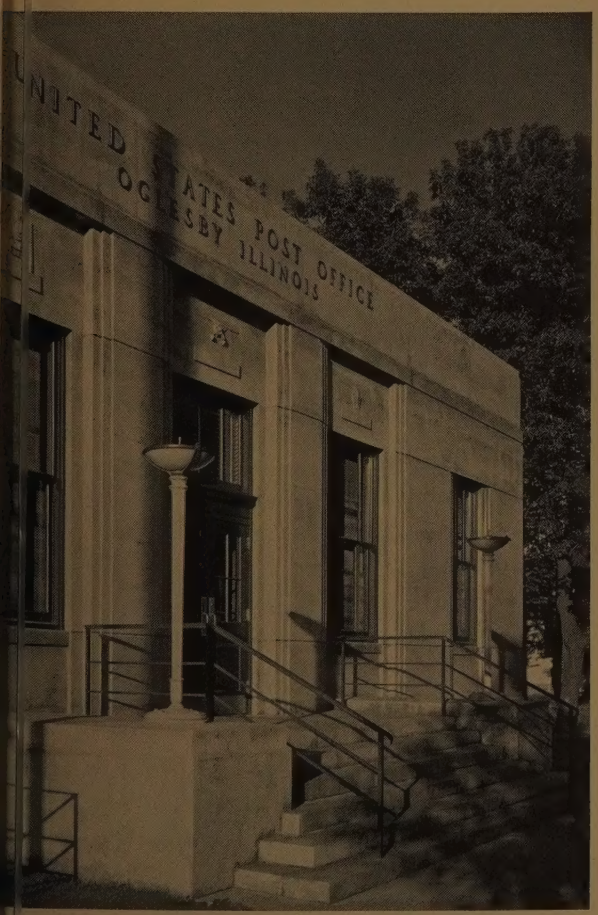
IN the five or six years prior to 1938 the volume of business passing through the post office at Oglesby, Ill., had so increased that a move to more spacious quarters was necessary. Fortunately, the size of this business justified construction of a government-owned building, one that would be designed to fit the function of the office. It is the dream of every small community postmaster to build a real post office, and my enthusiasm over the prospect of building one for Oglesby was no exception.

After the Post Office Department authorized the pu chase of land and construction of a suitable building, ther were a few details in preparation of plans about which considered it my duty to state a preference. One was tha the building should be of modern design, for Oglesby ha no traditional architecture to live up to—and there wa general concurrence with this idea in the community. Th other was that the new building should be of architectura

*Postmaster, Oglesby, Ill.

Although Oglesby, Ill., is a community of but 4,000, its mail business entitles it to one of the most modern post offices in the land. This modern archi concrete building, designed by the Public Buildings Administration, was erected by the Elston Construction Co., of Chicago.

st fice is complete in every detail with covered loading platform at rear. Smooth-formed concrete walls were finished by cleaning with portland cement g



zing today's speed in carrying the mail are molded panels of loco- airplane and ship in the spandrels over entrance.

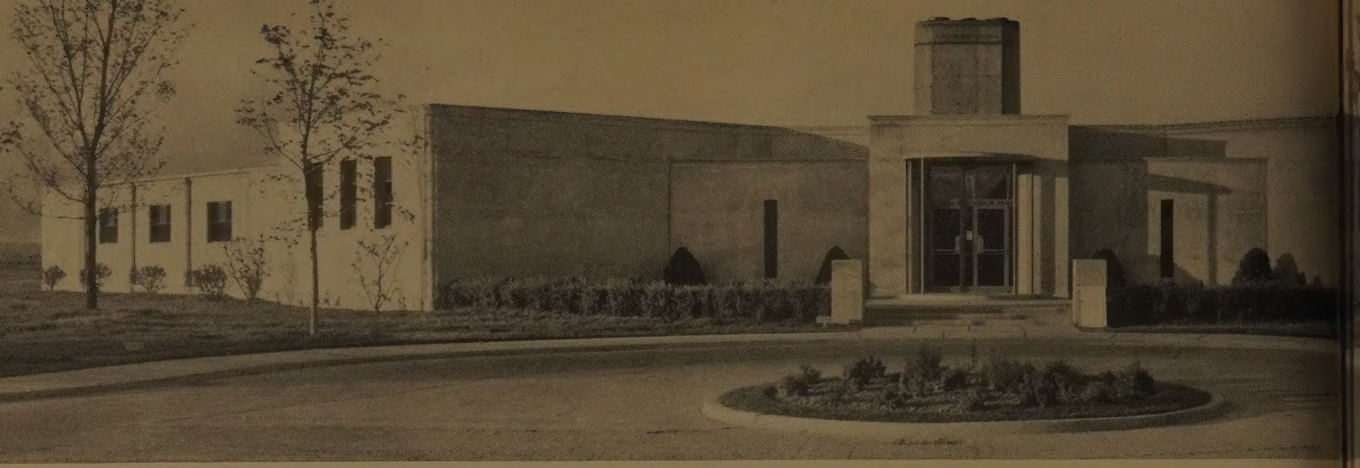
concrete—one of the most modern of design mediums, made of materials produced by most of the working people of the town in the nearby mills and quarries.

A trip to Washington resulted in complete and friendly cooperation with officials there and a promise that we would get what we wanted in so far as it was possible to do so. Some time later the plans prepared by Public Buildings Administration architects came through to indicate that the building would be what it is as now completed—a fine, modern post office that would make any town proud.

Work started in the summer of 1940, and by October 31 of that year it was ready for laying the cornerstone and dedication. The ceremony was attended by numerous dignitaries from all over the state and by a large turnout of greatly interested townspeople. Formal opening was on February 3, 1941—the climax of a three-day open house during which everybody in Oglesby and other towns near by visited the building and admired its beautiful appointments, generous interior space and efficient arrangement.

Opening day at this post office was a philatelist's field day. Through the cooperation of local stamp clubs, commercial and industrial offices, special cachets of "first-day mailings" went out to stamp collectors in every state in America and Canada—carrying the news everywhere that Oglesby's post office at last is streamlined for rapid handling of the mail.

Symbolizing this new service are three panels on the front of the building—a locomotive, a steamship and an airplane —permanently molded in the durable concrete of the walls.



Health, fun and knowledge are made available to the youth of Oglesby, Ill., in this fine recreation center. Separate rooms are provided for swimming, bowling, playground, it was designed by Anderson & Ticknor, architects, of Lake Forest, Ill., and built by Milton W. Pillinger, contractor, of Oak Park, Ill.

Recreation Center—Oglesby, Illinois

By James H. Ticknor*

OGLESBY, Ill., is one of a score of industrial towns along the Illinois River in the north-central part of the state. A small community with a predominantly working population, it has until recently lacked the social, recreational, and some educational facilities that are found more frequently in large metropolitan areas. To remedy this lack the Theodore G. Dickinson Foundation has provided a 10-acre plot on which it has erected a community recreation building as the hub of the project.

The building contains proportionately ample entrance vestibule and lobby; bowling-alley room with six alleys; study room and lounge; 20x60-ft. swimming pool; men's and women's locker, shower and toilet rooms for use both in connection with the indoor pool and outdoor activities; and a vocational room where the use of machines and tools is taught the younger generation and where mechanically-minded elders may indulge in their hobbies.

A V-shape plan was selected as best suited to produce well-oriented rooms and to give a symmetrical facade with axis on the main street approaching the grounds, while a low-lying building fitted into the topography of the site. It was also recognized that a symmetrical plan would lend itself to economy due to the similarity of the several parts. The two halves of the building on either side of the north-south axis being for the most part identical, enabled the moving and reuse of concrete forms intact.

The ready availability of all necessary concrete materials in the vicinity of Oglesby indicated that concrete was the "native" material. This material seemed to be especially adaptable to the design in mind and to the use to which the building was to be put. Hence the decision to use concrete and other materials containing portland cement widely throughout the building was a logical decision.

Foundations, exterior walls, many interior walls, floors and roofs, stairs and swimming pool are of cast-in-place reinforced concrete. Interior partitions are of lightweight aggregate concrete masonry which material is also used for furring the exterior walls. Lightweight aggregate concrete is used on top of structural roof slab for insulation.

All exterior concrete surfaces and for the most part interior concrete and masonry surfaces have been left with natural finish. Exterior and interior paneled wall treatments, cornices, moldings and other architectural decorations were all executed with mill-run wood members incorporated in the plywood forms.

Concrete in the rigid frames supporting the roofs over bowling alleys and swimming pool was placed up to a

Rustications in the spandrel panels were formed by attaching 1-in. strips to the plywood forms.

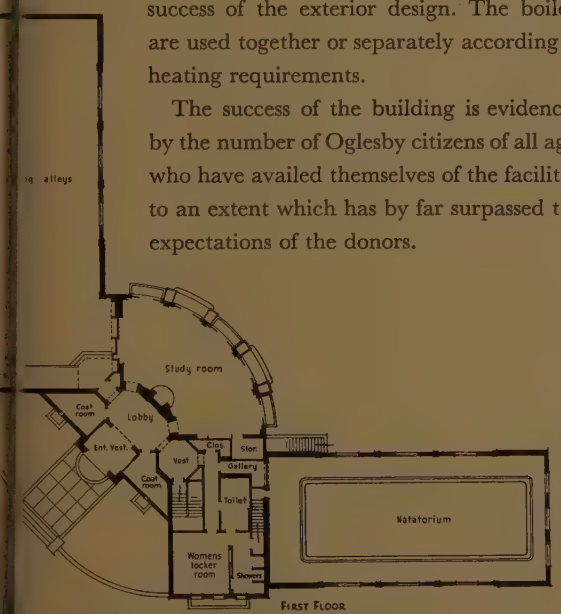
*Anderson & Ticknor, architects, Lake Forest, Ill.

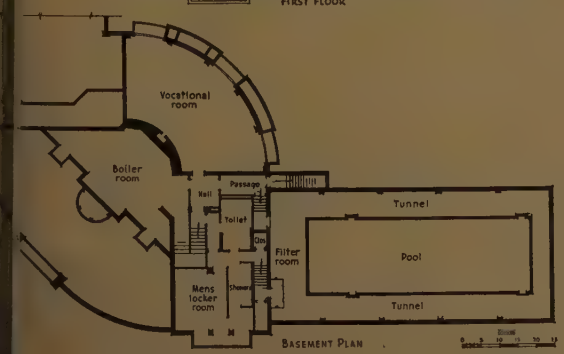
ng. Planned as a low-lying structure to fit a corner of a 10-acre

izontal construction joint in the haunch, then the roof ders, beams and slabs were formed and placed in one ration. The intermediate 6-in. thick rusticated walls be- en frames were later built as curtain walls, the rustica- s being formed by nailing beveled wood strips on the de of the plywood forms. Rustications have served ade- tely and properly as control joints.

The fact that heating loads for the building itself and for ting water for swimming pool and showers were approx- tely equal made possible the use of two boilers, thus mitting the use of the low chimney, essential to the success of the exterior design. The boilers are used together or separately according to heating requirements.

The success of the building is evidenced by the number of Oglesby citizens of all ages who have availed themselves of the facilities to an extent which has by far surpassed the expectations of the donors.





Roofs over swimming pool and bowling alleys are supported by concrete rigid fr

The six bowling alleys are in almost constant use.

Reading room has popular books and the latest magazines.

Young and old pursue hobbies in the vocational room.

Liberal Arts Building—Seattle College

By John W. Maloney*, A.I.A.

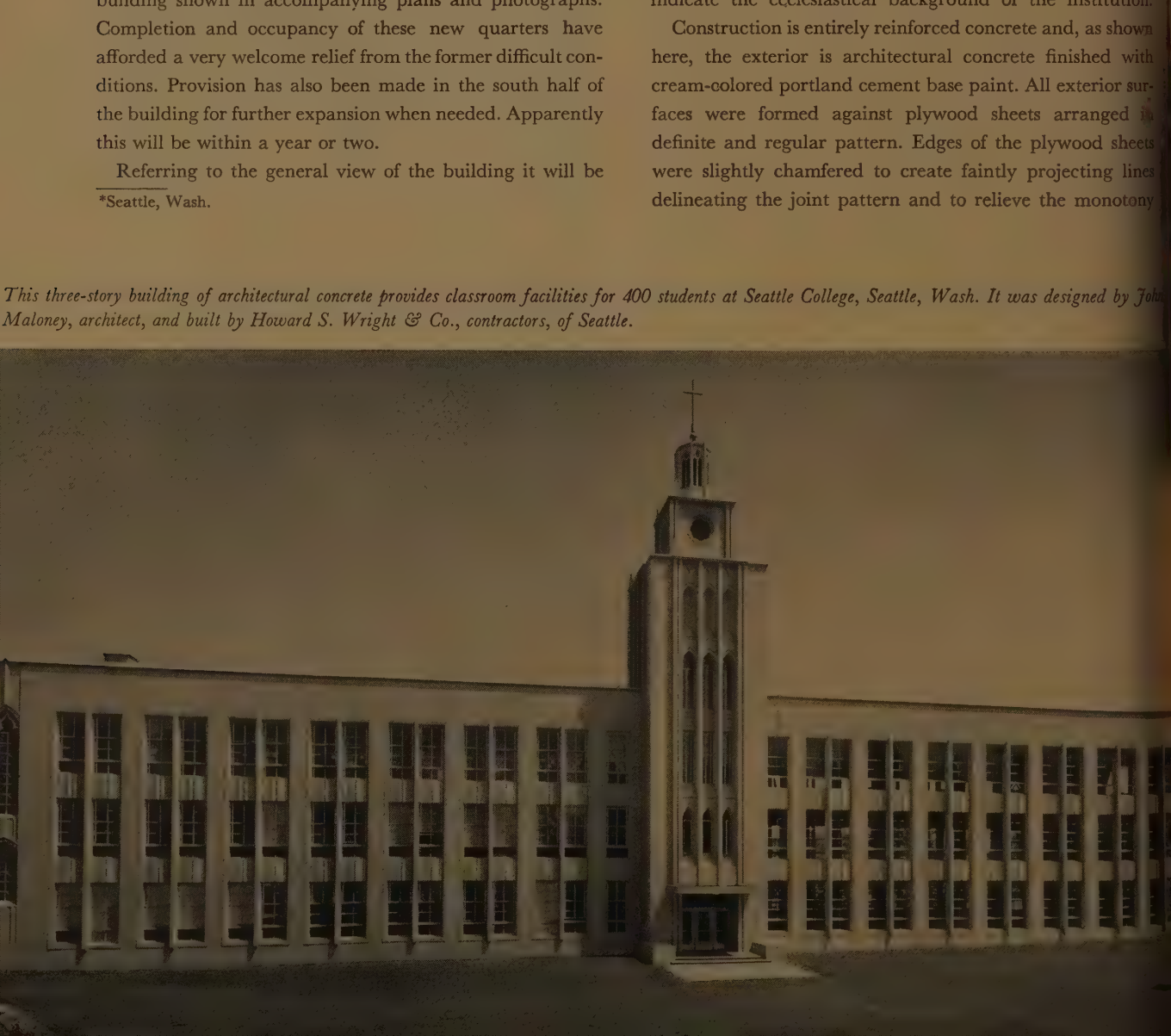
FOR several years the growth and development of Seattle College have overtaxed the institution's facilities, necessitating rental of additional quarters which were none too well-adapted for scholastic uses. It was this situation which brought about the construction of the new Liberal Arts building shown in accompanying plans and photographs. Completion and occupancy of these new quarters have afforded a very welcome relief from the former difficult conditions. Provision has also been made in the south half of the building for further expansion when needed. Apparently this will be within a year or two.

Referring to the general view of the building it will be seen that it is essentially a simple classroom structure—224 ft. long, 58 ft. wide and three stories high with a square central tower on the west side. Architectural treatment is modern with a blend of Gothic, shown especially in the tower with its long, narrow, arched windows at the ends to indicate the ecclesiastical background of the institution.

Construction is entirely reinforced concrete and, as shown here, the exterior is architectural concrete finished with cream-colored portland cement base paint. All exterior surfaces were formed against plywood sheets arranged in definite and regular pattern. Edges of the plywood sheets were slightly chamfered to create faintly projecting lines delineating the joint pattern and to relieve the monotony

*Seattle, Wash.

This three-story building of architectural concrete provides classroom facilities for 400 students at Seattle College, Seattle, Wash. It was designed by John Maloney, architect, and built by Howard S. Wright & Co., contractors, of Seattle.



he otherwise unbroken flat surfaces.

Spandrel surfaces are a series of planes set at a slight inclination to one another, while very simple fluting mark the outlines of doorways and windows. The parapet coping is given a few inches of projection. Beyond these features no decorative treatment was attempted.

The efficient arrangement of the several floors is shown by the plans. Lecture halls provide accommodations for 400 students. When the south half of the building is furnished and equipped, 750 additional students will be provided for.

All furnishings are of good quality but serviceability and simplicity are maintained throughout.

...m well of tower through skylights shows that the ...of the openwork tower are utilized as flower pots.

... throughout the building, to indicate the ecclesiastical background ...llege.

Sharp detail and fine execution of the slight projection marking the form joint lines is the result of perfect form construction, constant control of concrete mix and careful handling of the material in the forms.

Stairs and central cross-corridors are done in terrazzo; longitudinal corridors are finished with asphalt tile. Acoustical treatment of ceilings in library and corridors maintains the quiet naturally desired in a building of this character.

The exceptionally fine workmanship and good appearance of the building have won the admiration of the community and everyone connected with the college. Credit for the building goes to the Rev. Father Corkery, S.J., president of Seattle College, whose earnest and untiring efforts made it a reality.

Annie Pfeiffer Chapel, at Florida Southern College, Lakeland, Fla., shows Frank
tecture. Built for the most part by student labor, Robert D. Wehr, of Lakeland,

Innovation in Colleg

By Wm. S. ALONEY*, A.I.A.

IN a lakeside orange grove, Florida Southern College, Lakeland, Fla., has commenced an ambitious project of erecting 14 new buildings designed by Frank Lloyd Wright. In this work Wright has once more shown his independence of tradition, for the designs for the Lakeland campus are a wide departure from college architecture as well as an entirely new pattern of building design in Florida.

Annie Pfeiffer Chapel, theme structure of this unusual project, was completed early last year and dedicated in March. Since its opening the building has become a point of interest for visitors who have registered from more than 30 states in this short period.

Construction is now practically completed on three small

*Publicity director, Florida Southern College.

seen that it is essentially a simple classroom structure—224 ft. long, 58 ft. wide and three stories high with a square central tower on the west side. Architectural treatment is modern with a blend of Gothic, shown especially in the tower with its long, narrow, arched windows at the ends to indicate the ecclesiastical background of the institution.

Construction is entirely reinforced concrete and, as shown here, the exterior is architectural concrete finished with cream-colored portland cement base paint. All exterior surfaces were formed against plywood sheets arranged in definite and regular pattern. Edges of the plywood sheets were slightly chamfered to create faintly projecting lines delineating the joint pattern and to relieve the monotony

400 students at Seattle College, Seattle, Wash. It was designed by Fol
tle.

fulfillment of the project idea which includes erection of buildings for the departments of music, industrial arts, home economics, art and dramatics as well as an administration building and several additional seminar structures.

Designed in low, heavy sweeps of architectural concrete and coquina concrete masonry, the new chapel is an example of Wright's theory that buildings should "grow out of the ground and bring the outdoors into the building" Identical exterior and interior finishes, flowers and shrub

nted decoratively inside the building, and overhead ating are essentials in his achievement of this aim.

Wright designed the chapel without conventional win-ws. Lighting is provided through a large skylight in the er which rises to a total height of 65 ft., through modi-l French doors along the rear of the north and south conies, indirectly through colored glass placed in the per-ated blocks, and through skylights over the auditorium.

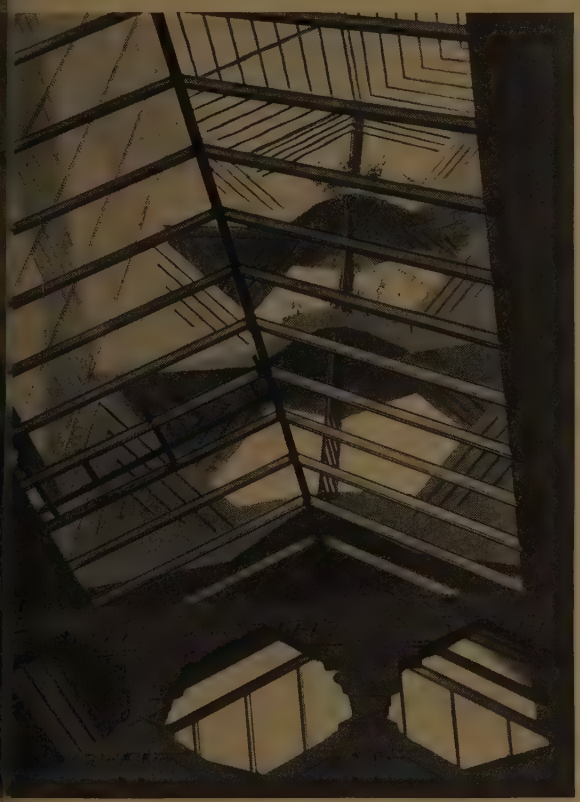
Seating on the main floor and on the mezzanine levels is tered about the rostrum in a semicircle, with no one in the audience being more than 50 ft. from the speaker. This is an unusual achievement in an auditorium seating approximately 1,000 persons. Acoustics of the building have been called "the most perfect in the world" by some architects who have inspected it. Bohumir Kryl, symphony orchestra conductor, was unusually impressed by the acoustics when his musicians played in the chapel before its dedication.

Most of the weight of the building is carried on four large, hollow piers adjacent to each of the four entrances. Counterbalanced on these pillars are the mezzanine floor, second and third decks, and the 36-ft. tower. Comparatively little weight rests on the outside walls. From ground level to mezzanine floor level the interior and exterior walls are of the coquina blocks. Forming the wall of the mezzanine as well as constituting a railing for the north and south overhanging balconies is a deep reinforced concrete spandrel 9 in. thick which was placed as a unit with the choir loft on the east side and the mezzanine on the other sides. Above the mezzanine level the coquina blocks are used again. The two flat wall areas of the tower are built of the same blocks stuccoed, with reinforced concrete members in the form of Gargantuan bow ties partially closing the other two sides of the tower and giving stability to the whole by tying the opposite walls together.

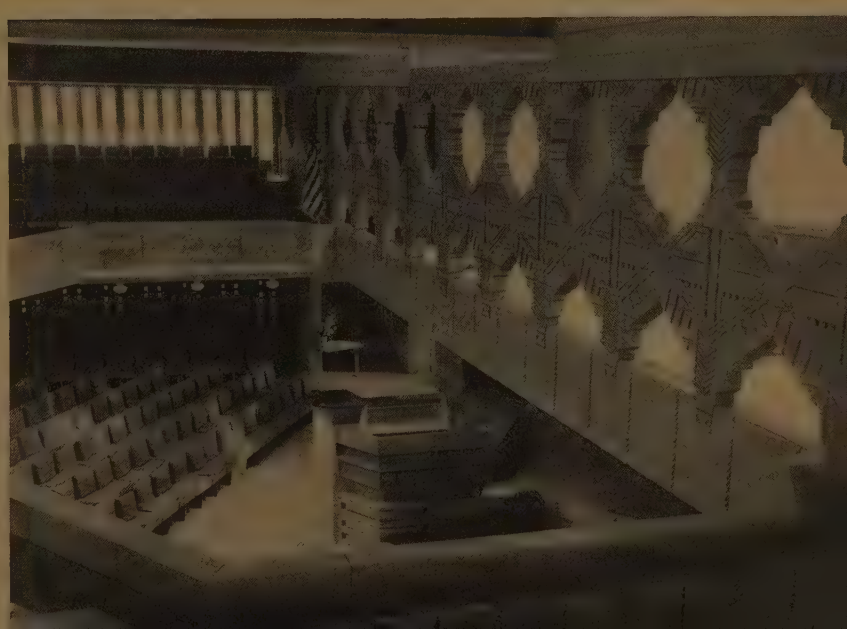
No structural steel was used in the chapel building. Wood was used only for door and skylight molding.

The coquina concrete blocks, all of which were made on the site by student labor, were laid up dry with $\frac{3}{8}$-in. steel rods in vertical and horizontal grooves. The grooves were subsequently filled with portland cement grout.

The building is heated by hot water pumped through a continuous copper coil buried in the concrete floor slab of the main floor. Provision has been made for air-conditioning the chapel through the four hollow supporting columns at each entrance.



n well of tower through skylights shows that the f the openwork tower are utilized as flower pots.



oncrete coquina masonry units are used functionally atively in the chapel where seating is arranged so that ie 1,000 seats are within less than 50 ft. of the pulpit.

Park Buildings for Iola, Kansas

By Garrold A. Griffin, Architect*

IOLA, Kan., is a typical Midwestern county seat town of about 10,000 population. A rather large relief load made it necessary that the city sponsor WPA projects almost continuously during the worst of the depression years. The city authorities decided that such reemployment work should, in so far as practicable, consist of high type projects which would not only satisfy the relief program but also provide the city with such facilities as would be permanent in character and form a permanent part of the city's recreational and social life.

Widespread local interest in athletics and the popularity of the county fair served to focus attention of the city commission on the development of Riverside Park. Existing facilities in the park were in such deteriorated condition that it was determined to start from scratch and replan and rebuild the park.

A complete discussion of the developments of this park would necessarily include a description of the building of dikes, race tracks, ball diamonds, tennis courts, exhibit sheds, driveways, buildings and scores of other major and minor projects. The only part of this work which I wish to discuss here, however, is the construction of the swimming pool and bathhouse, stadium, and the combined community building and armory. These buildings were all done in architectural concrete.

*Iola, Kan.

The pool and bathhouse were designed to accommodate a maximum of 500 bathers a day. The pool is 180x90 ft. and is equipped with the latest type of fixtures and specialties—submarine lighting, diving boards, slides, wading pools, promenades and colored water fountain. Water is continuously filtered and returned to the pool from filters under the bathhouse.

First consideration in the design of a pool and bathhouse is that of function. In my experience in designing several pools I have found the best approach is to determine first the maximum number of bathers to accommodate at one time and to design all facilities around this number. While function is the first consideration in design, it is by no means all that should be considered. A bathing layout must be attractive and inviting. For the successful financial operation of a pool these last considerations are important.

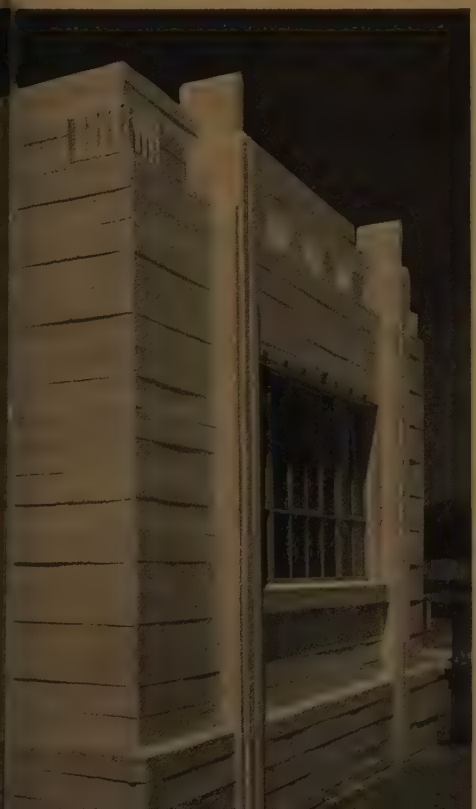
Walls of the pool were cast against Presdwood lined forms. Forms for the bathhouse were made of No. 2 rough-sawed fir built to produce a "basket weave" texture. This type of forming and texture was used for all buildings and will be discussed in detail later.

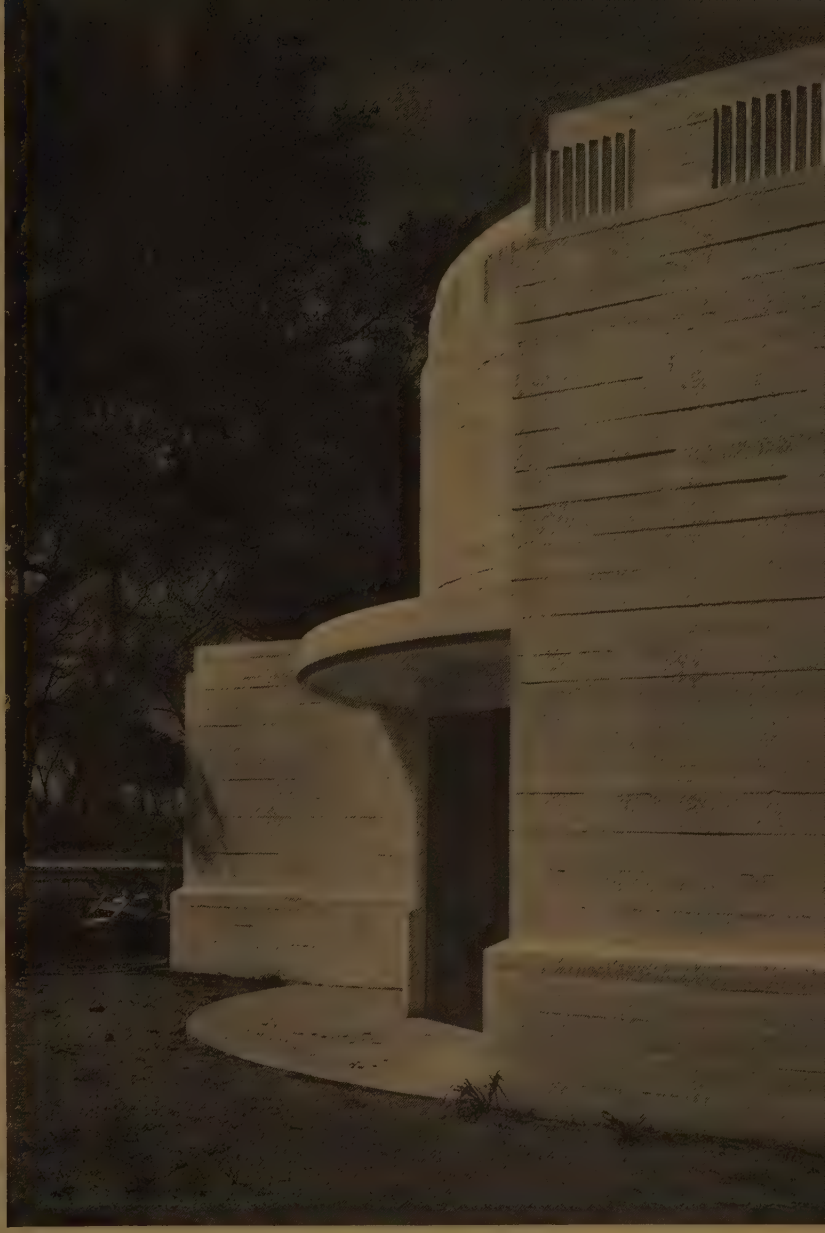
The stadium is located next to the race track for use mostly in connection with county fair races, exhibits and outdoor dramatic festivals. It is also used by the local high school and junior college. Athletic quarters are provided underneath the stands. Seating approximately 1,800, the

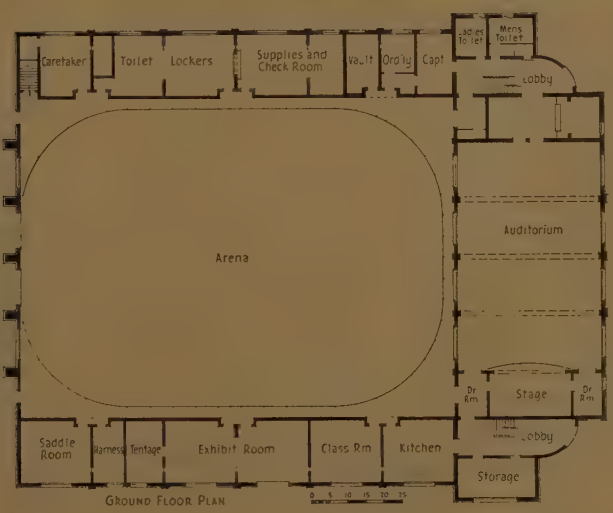
y building and armory is one of three archi- ncrete buildings erected at Riverside Park, ,, location of Allen County Fair. Designed l A. Griffin, Iola architect, all park struc- built by WPA.

wed fir 8 in. wide was used as form lumber mmunity building (right). Alternate boards ed to produce a basket weave texture.

a corner of the bathhouse, another example of ave texture produced with 6-in. rough-sawed

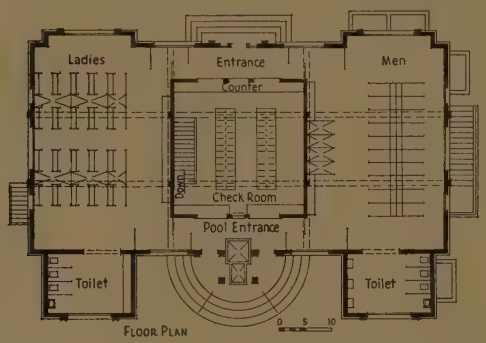






GROUND FLOOR PLAN

Bathhouse at Riverside Park, Iola, Kan. (see plan below). Pool and bathhouse were designed to accommodate 500 bathers a day. Successful operation of pool based on attractive, inviting, clean appearance as well as on an efficient layout.



FLOOR PLAN

stadium is 194x46 ft. in plan and is all concrete.

Latest of the three concrete buildings to be completed is the community and armory building. As a community building, it provides a large hall for civic affairs, little theater, and ample space for basketball and other indoor athletic events. As an armory, the structure provides facilities required by the National Guard: large drill hall, rifle range, ammunition storage and officers' quarters. During county fairs the same space is available for exhibits of all kinds. One building can hardly be designed to function perfectly for such diversified use, but an attempt was made to go as far as possible in this direction with the funds available. This building is all concrete except for the drill hall which has steel arches and metal deck roof. All of the walls are exposed concrete inside and out except for the toilets which are finished with portland cement plaster.

Method of forming the exterior walls and texture was the same for all three buildings. Form sheathing was No. 2 rough-sawed fir with alternate boards wedged to produce the basket weave texture. My reasons for using this type of texture were: first, a preference for rough-textured walls for park structures; and second, the particular lumber required for this texture is readily available at low cost.

Specifications called for rough-sawed boards with as much tearing as possible. The original idea was that the lumber would be re-sawed with a band saw to produce vertical saw marks. However, the availability and price favored the use of rough lumber cut with a circle saw. This gave a slightly different texture than originally planned in that the saw marks are slightly curved.

The basket weave is produced by driving small wedges between the boards and the studs. Wedges are driven behind alternate boards on the same stud and staggered on alternate studs. The amount of nailing to hold the form on the studs will, of course, vary with the thickness of the boards and the depth of the weave, that is, the amount of wedging. Lumber used on these buildings was, in general, a full 1 in. thick, but varied from 1 in. to 1⅛ in.

Because of the design of these buildings most of the forms were built in panels on the bench. Practically all of the labor available was unskilled and semiskilled, and it was found that these men produced much better work on the bench where supervision of work was closer than would be the case had the forms been built in place. Moreover, with the necessary driving of the wedges and use of heavier nailing to studs, it is believed that panel forms would probably have proved better, regardless of the class of labor available. When the wall forms were erected it was an easy matter to inspect the forms, and if the weave was not enough, or too much at a certain point, adjustments were made simply by driving up or easing off the wedges.

Form boards were dressed to a uniform width. This was found essential to prevent leakage of mortar which would damage the texture. Experience showed that concrete needs to be a little wetter to produce a rough-board-marked texture than is necessary when smooth plywood forms are used. Concrete must be fluid enough to "take-off" the texture of the forms. About 6½ gal. of water per sack of port-

cement was used. The concrete tested uniformly over 0 p.s.i. at 28 days.

orizontal construction joints were no problem at all the basket weave texture. The placement is simply ped at a board line. The texture itself explains why e joints don't show. In patching the holes, it was found the most satisfactory method, after filling, was to wipe he patch with a wet carpet float.

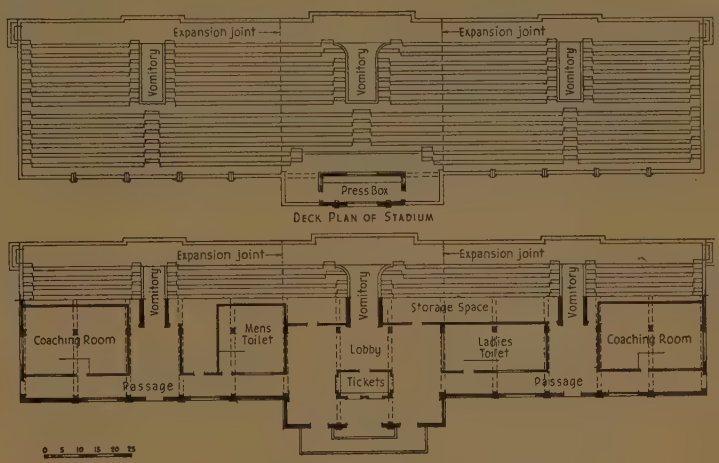
or the bathhouse and stadium, 6-in. boards were used le 8-in. wide boards were used for the community and ory building. The latter building being larger it re- ed detail of greater scale. All exterior walls were finished cleaning down with water and applying two coats of l water white portland cement paint.

These buildings were not my first structures in architec- al concrete. My previous experience with this material been so completely satisfactory that I immediately nned these buildings in concrete. The adaptability of itectural concrete affords the progressive architect and dern designer new, almost unlimited fields of expression.

Unfortunately the costs of the bathhouse and stadium not readily ascertainable since they were built in com- ation projects with other park work. The community lding, however, cost approximately $100,000, or a cubic t cost of slightly over 17 cents.

The excellent cooperation of the Work Projects Adminis- ion engineers was most helpful throughout. Charles H. lker, WPA superintendent, should be credited as an portant influence in the quality of work done.

The municipal stadium, which seats 1,800, is used for horse races during fair week and for high school sports events all year. Wall is fine example of texture finish.



IBM Builds Another —in Concrete

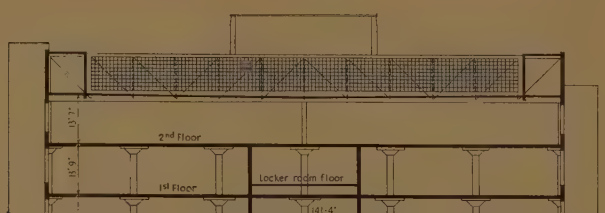
By Charles A. Kirk*

A NEW concrete building at the International Business Machines Corp., at Endicott, N. Y., is not a novelty. During the years in which this company has expanded to meet the ever-increasing needs for precision machinery, many of the shops and factory structures which preceded

*Vice president in charge of manufacturing, International Business Machines Corp.

Employes' entrance to new machine shop built by International Business Machines Corp., Endicott, N. Y.

The new building closely resembles many another structure erected by IBM (see bottom of page) using architectural concrete. The corporation's own plant engineering department designed this structure as it has all others. It was built by Turner Construction Co., of New York, N. Y.



Section through the building. Note the air-conditioning corridors at top-story level.

the new Building No. 41 have been concrete. Along the street on which this new machine shop is located are four other concrete buildings.

Like many another firm organized to build machines and tools, IBM has taken a share of the defense work it is able to handle effectively and has found it necessary to increase plant and equipment. This construction has proceeded without undue delay and without greatly disturbing the routine at the plant, for IBM has long maintained its own plant engineering department which has designed and supervised construction of most of the company's buildings.

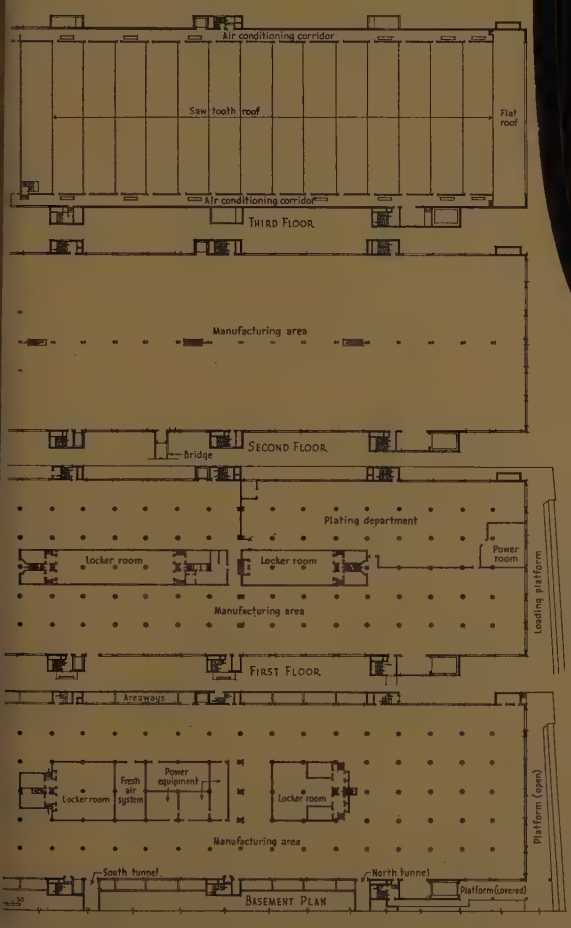
This new machine shop is, above all, an industrial plant arranged for efficient workmanship under ideal working conditions. This is not a new departure either, for the industries of the twin cities of Endicott and Johnson, N. Y., were pioneers in putting employer-employe relations on a high plane. Provisions for the comfort, health and morale of IBM employes are major features of any design for a new building or for any remodeling or reconstruction of older facilities. This new building contains many innovations created by Thomas J. Watson, president of International Business Machines Corp. for the convenience and welfare of the employes. That the new building has obviously better appearance than the older buildings is due not to architectural embellishment, but to the effort made to improve working conditions. Modern fenestration is used to achieve larger light areas with fewer openings in the walls. This has resulted in less cluttered appearing walls.

Choice of concrete for this building was natural—to harmonize with other buildings and to produce the structural

Three older IBM buildings along street on which new structure is

gth and durability which long experience has proved
rete possesses. The structural design followed more or
the previous practice of using 8-in. spandrel walls be-
n 3 ft. 9-in. piers. The lower floors which support
y machinery are flat slab concrete of 12½-in. thickness.
exterior walls, formed against plywood, were given a
t rubbing as the only finish treatment. The only strictly
rative detail molded in the concrete is the sign in thre
ions of the front spandrel walls and the company trad
k above the side entrance. A dentil band beneath th
ng produces a shadow which effectively outlines t
ding. Roof is a saw-tooth type with steel framing f
ights.

n keeping with company policy of providing ever bet
ditions for the workers are two new features of t
ding—an extensive shop-wide air-conditioning syst
central sanitary and comfort facilities. Both invol
ctural details of considerable interest as the accompa
plans indicate. Most of the 51 air-conditioning u
located in two concrete-walled corridors at third-st
l. An exhaust system brings used air from all over



Walls of the building [illegible] a light uniform color. The name of the firm is molded in the spandrel walls.

building into these corridors. Here fresh air is conditioned and circulated back into the building through a series of ducts. The system provides for a uniform temperature and humidity control through all seasons of the year.

The comfort facilities—washrooms, showers, lockers and toilets—are located in the center of the building. The floors of these rooms are between the general floor levels, making it possible for workers to climb up but a few steps from one floor and down a few steps from the floor above to reach these rooms. This not only saves time, but reduces fatigue due to stair climbing.

Construction was carried on during winter months of 1940-41 by the Turner Construction Co., of New York. The results, as the photographs indicate, were highly satisfactory.

00 crypts. Durability and dignity of appearance were achieve
tects. Frank Chappell, of Dallas, was structural engineer an

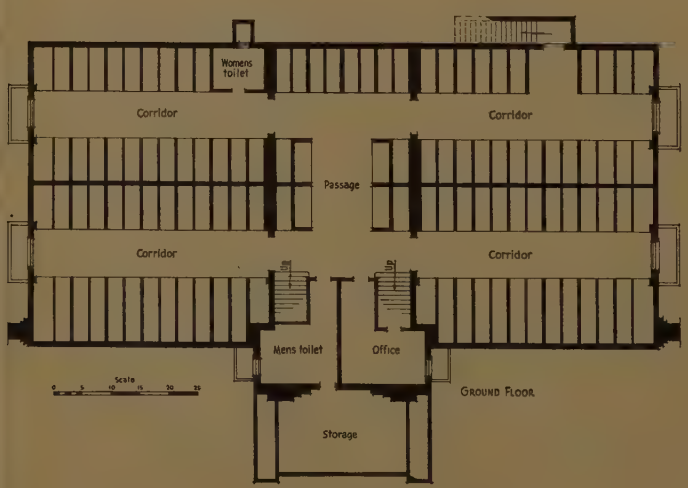
um—Dallas, Texa

TSGER*, A.I.A.

THE largest mausoleum in the South, containing 1,000 crypts, has been recently completed at Crown Hill Memorial Park, northwest of Dallas, Texas.

In design, construction and economy this structure, like any other mausoleum, presented problems that are eas understood but which are rarely considered because the are so few of this type of structure compared with oth types. Mausoleums are more expensive than ordinary bui ings because their outer walls enclose, not wide clear are

*Noftsger & Lawrence, architects, Oklahoma City, Okla.

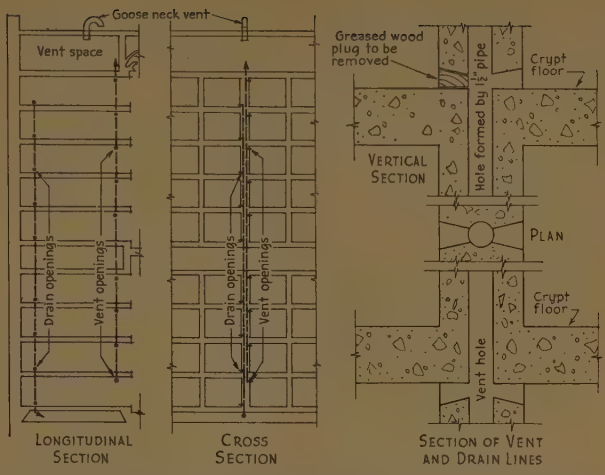


a complexity of walls and floor levels which form the -like crypts. Such buildings can also be far more costly n practicable if expensive enriching materials are added he basic structure to achieve monumental appearance. ce monumental appearance is required, due to the per- nent and solemn nature of mausoleums, maximum econ- y of construction can be achieved only by employing igns that use the same material for enriched surfaces as the structural walls.

The owners of Crown Hill Memorial Park came to me a suggested design for the new mausoleum because of work with this type of structure in Oklahoma City and lsa. They presented very rigid requirements including number of crypts desired, the size of chapel needed, and top price that could be paid for a complete building. I lied at once that these requirements could be met only the use of an architectural concrete exterior, for it was parent that by thickening the concrete walls of the outer pts which already formed the major portion of the exte- r of the building, and by giving these surfaces an appro- ate architectural treatment, the cost of veneered surfaces uld be eliminated. Veneers not only add a more expen- e material to a project, but involve additional construc- n and finishing time.

At the time this suggestion was made there was little

cuted detail around the entrance was formed with wood and plas- . Sharpness of all molded detail reflects the care with which the as placed in the forms.



Crypt drainage and ventilation are among the most important details in mausoleum design.

architectural concrete in the Dallas area that could be pointed to as an example of a monumental exterior. The owners were naturally skeptical over the possibilities of producing the appearance they desired in a material with which they were so unfamiliar, hence it was necessary to show them by means of photographs and drawings what could be done. With photographs of many fine buildings of all types and of a variety of excellent surfaces and textures, the owners were finally convinced work should proceed in concrete.

The building, as finally approved, is 110x53 ft. and includes a ground floor, partially below natural grade, and a first floor which includes the chapel. Access to both floors is by broad stairways leading from the imposing entrance. The exterior walls, 10 in. thick and formed against plywood, were cast in 4-ft. lifts. Exterior walls were placed prior to the crypts with dowels and recesses provided for the crypt walls. The crypts are 2 ft. 8 in. wide, 2 ft. 10 in. high and 7 ft. 6 in. long. The bottoms, sides and tops of the crypts are all 4-in. thick concrete except where they are a part of the exterior walls of the building.

Problems of drainage and ventilation of the crypts, which are very important, were solved satisfactorily in the manner shown by accompanying drawings.

Enrichment of the exterior depended entirely on molded concrete except for the trim around the main entrance. The style of the building is modern in form with modified classic detail. Dignity and simplicity were thus achieved at no great expense through the proper use of characteristic concrete forms and texture. On the interior, careful use was made of marble, bronze and stained glass.

The contract for the building was $108,000 which made the cost per crypt about $108—a very reasonable price for buildings of this type.

Galveston's new Cotton Exchange Building, a modern architectural concrete building, replaces an old masonry structure erected in 1878. It was designed by Milam, Galveston architect, and built by Texas Gulf Construction Co., also of Galveston.

Cotton Exchange Building—Galveston

By Ben Milam, Architect*

EARLY in 1941 the Cotton Exchange and Board of Trade of Galveston, Texas, occupied a new building at 21st and Mechanic Sts. on the site of the old building which was erected in 1878 just five years after the Exchange was organized. The new building is a decided contrast with the old landmark which was Victorian in design with arched windows, heavy cornice and a fire escape down the very center of the main facade. It is an architectural concrete structure, modern in design, in plan and in materials.

The new structure covers approximately the same ground space as the old building—about 62x120 ft.—is three stories in height, and is air-conditioned for year-around comfort.

In planning the new building, the building committee, composed of Charles R. Crocker, F. J. Herbelin, Harris L. Kempner, and headed by D. W. Kempner, chairman, desired a structure of simple dignity, enclosing an efficient arrangement of floor space. An attempt was made to secure a feeling of stability in a design that would neither be dated as to period nor yet resemble a country bank. A firesafe building was an obvious requirement as was a type of construction that would withstand time and wear.

It was first planned to construct the building using a reinforced concrete frame with filler walls of tile, brick and stone trim. Bids calling for such a structure were asked, but the costs submitted were higher than the appropriation set up for the project. Negotiation was begun in order to reconcile cost with the budget. The contractor, W. A. Kelso, of the Texas Gulf Construction Co., having completed several architectural concrete projects, suggested concrete as the means of obtaining firesafe construction affording identical size and comfort. Plans were then altered and a satisfactory bid in architectural concrete was obtained.

In removing the old foundations some items of historical

*Galveston, Texas.

rest were unearthed. Among them were a number of el-shaped masses of solidified cement used as fill when old first floor was raised above water level. It was re- d that this cement was aboard a vessel which was en ashore and wrecked in the flood of 1900. Staves and os were removed and the solid masses were salvaged as material. Beneath the old foundation was found evidence n even earlier brick building with spread brick founda- s laid on a base course of 4x16-in. cypress planking. he new structure was formed against 4x8-ft. plywood panels arranged vertically with studs on 12-in. centers horizontally. A pleasing wall surface was obtained, requiring virtually no pointing, as upon inspection, the building committee felt that slight irregularities of surface expressed the character of the material and lent interest to texture.

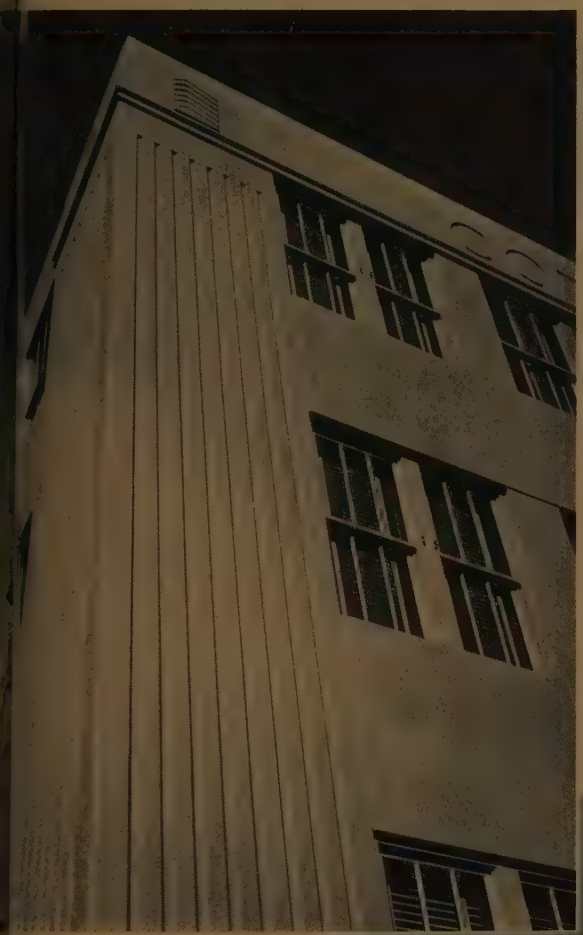
Control joints were provided to relieve stress due to contraction of the concrete. These deeply incised control joints were calked to match small incised V-joints and the whole joint pattern was made a part of the exterior design. Plaster waste molds were used for the cotton bale details which occur on the parapet wall at all four corners, and for molding around the structural glass trim and base.

Concrete was placed with internal vibration used consistently to produce uniformly dense walls and smooth texture. The highest lift of concrete between construction joints occurred from sill to head of the first floor windows, a distance of 9 ft. From the head of this window to the sill of the next window level above is 5 ft. 6 in. This lift of concrete included the floor slab. All construction joints were made at window heads and sills.

After all forms were removed and the walls were cleaned, the building was given two coats of stone grey portland cement base paint.

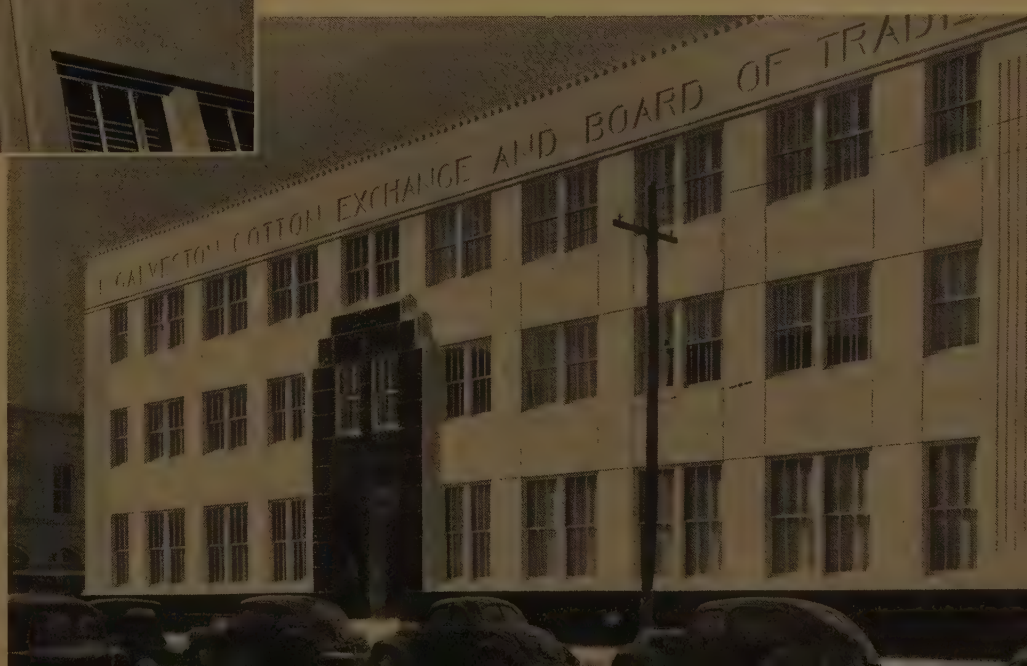
The interior is quite as beautifully simple in treatment as the exterior. Two-tone effects of soft green and tan are used for the walls. Ornamental tile, terrazzo floors and woodwork finished in walnut give richness to the lobbies and the main floor areas which serve the public.

Through the generous cooperation of the building committee, the contractor, and all concerned with the planning and building of the Cotton Exchange, a structure has been turned out that will stand for many years as a monument to a splendid past and evidence of faith in the future of the great Port of Galveston.



ne design gives a feeling of se- ity and stability consistent with organization housed within building.

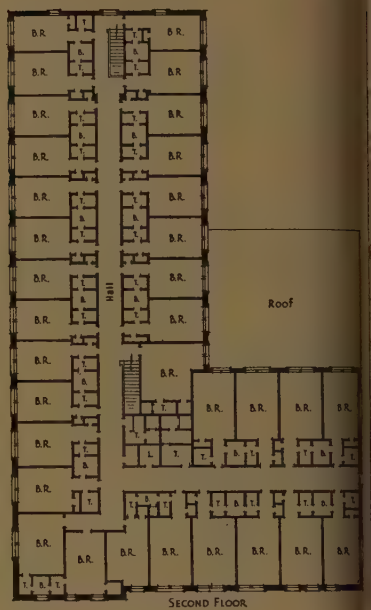
ntrol joints and small V- ised joints formed a pattern hich becomes a part of the ex- ior design.



New Hotel for Opp, Alabama

By Richard J. Adams, Architect*

First Floor



Second Floor

IN planning a new building to replace the old Covington Hotel at Opp, Ala., which was destroyed by fire, H. L. Hudson, owner and manager, was determined that it should be a building that could never burn. He wanted to be sure that the near catastrophe caused by the fire would never be repeated, but in accomplishing this the new building should be economical in construction and low in maintenance.

As a result of my experience with architectural concrete in the design and construction of the Alabama State Highway Department building at Montgomery (see Architectural Concrete, Vol. 2, No. 2) this material seemed best suited to express the purpose of the structure and to satisfy the owner's requirements for firesafety and economy.

Although the building was designed for architectural concrete, an alternate bid was asked for brick exterior walls. This occurred because the owner had salvaged 100,000 brick from the fire and wanted to make use of them. When the bids were opened, however, it was found that even by furnishing brick it would cost more to build in masonry than in concrete.

*Montgomery, Ala.

New Hotel Covington at Opp, Ala., is an architectural concrete building replacing an older structure that was destroyed by fire. Richard J. Adams, of Montgomery, architect. Harvey & Quina Construction Co., of Pensacola, Fla., contractor.

main entrance canopy provides shelter for an open-air lobby ch is useful throughout most of the year in this mild climate.

The building is a two-story L-shaped structure with full basement. There are 18 guest rooms on the first floor and 33 on the second floor—all with baths. Total floor space, including basement, is approximately 26,000 sq.ft.

Architectural treatment, except on the street elevation, is confined to horizontal rustications which make convenient locations for construction joints. The front is treated in contemporary style with broad flutings. Breaking the facade at the entrance is a large loggia with projecting canopy. In this moderate climate the loggia serves as an outdoor lobby during a greater part of the year.

Exterior walls are 8 in. thick and are reinforced with ⅜-in. round bars on 4-in. centers horizontally and 8-in. vertically. Outside forms were of plywood. All exposed surfaces were rubbed down as soon as the forms were stripped and finally were finished with white portland cement paint. Inside the walls are furred and plastered. The concrete slab and joist floors are carpeted in hallways and guest rooms and covered with asphalt tile in the lobby, cafe and shops.

Mr. Hudson reports that Covington Hotel's reputation for pleasant living has spread throughout Alabama and that the building has entirely fulfilled his expectations.

The hotel cost $85,000 including mechanical equipment and all fees, but excluding furnishings.

Harvey & Quina Construction Co., of Pensacola, Fla., was the contractor.

---

rminal Annex Post Office—Los Angeles

By Gilbert Stanley Underwood, Architect*

)S ANGELES' new Terminal Annex Post Office, " located at Alameda and Macy Sts., is a modern design ucture with Spanish details to harmonize with the new ion Station on the opposite side of the street.

Probably one of the most heavily designed concrete struc- es on the West Coast, it is designed not only for earth- ake resistance but for an additional fourth story at some ure date. The roof may also be used for an autogyro ding field if developments in this type of mail shuttling come practicable.

Architectural concrete walls of the building range in thickness from 16 to 30 in. Floor slabs are 11½ in. thick. The building has 389,856 sq.ft. of floor space, providing the Los Angeles area at last with a mail distributing center of adequate size.

One of the most unusual features of the building is the system of air conduits. There is about 1 mile of reinforced concrete conduit, 4 ft. square, located under the basement floor. This is connected with the fan rooms. From this conduit, vertical ducts extend up to the third floor through the structural columns, all but a few of which are hollow having been placed around galvanized metal cores. Inlets and out-

*nderwood & Underwood Co., architects and engineers, Los geles, Washington, D. C. and New York.

Los Angeles' new Terminal Annex Post Office is a large concrete structure facing the city's newly-built Union Passenger Terminal. Gilbert Stanley Underwood, of Washington, D. C., was the architect. It was built by Sarver & Zoss, Los Angeles contractors.

Exterior concrete walls were formed against dressed lumber or plywood, depending upon texture desired for certain areas.

lets in the columns are provided with fresh air and exhaust ducts arranged in proper balance. This system does away with the large metal ducts which have always been a problem due to the space which they occupy and the difficulties encountered in finding a suitable place for them.

Exterior concrete walls, formed against dressed lumber or plywood, depending upon textures desired for certain areas, were finished with portland cement paint.

The building, which brings Los Angeles' railroad mail terminal facilities up to time, was erected at a cost of $1,692,000, including everything but the 10 elevators serving the structure.

(*Below*) *The design of the building when viewed from any point bespeaks the efficiency for which it was planned.*

hip-to-Shore elephone Station

By Merrill C. Lee*, F.A.I.A.

a common occurrence these days on fishing boats rid- the waves off the Virginia coast for men aboard to , "Captain, the telephone!" And truly, the captain is ed on the telephone, and the person calling him may ting at a desk in any Norfolk, Va., office.

is is made possible by the ship-to-shore radio telephone n WGB, recently completed by the Chesapeake & nac Telephone Co., of Virginia. Station WGB is ed at Virginia Beach and serves boats operating in pton Roads and the Chesapeake Bay. Similar stations boats along the Atlantic coast.

vice offered is of two kinds: dispatching service de- H for the use of towboat companies, fishing trawlers, ads and other companies operating tugs; and general e for the use of yacht owners, small passenger boats ther craft. Calls may be made between boats.

oastal and Harbor Telephone Service", which is the l description of the purpose of the stations, obviously umerous uses. A yacht owner may keep in touch with ffice and home. Passenger companies can discover at

mond, Va.

B is one of two ship-to-shore radio transmitters built in the rea of Virginia by the Chesapeake & Potomac Telephone C. Lee, of Richmond, architect. R. R. Richardson & Co., of nd Norfolk, contractors.

Concrete was selected for this building because it is expected to stand up under continuous exposure to storm and blowing sand.

once where their boats are and what has caused delays, and can also offer telephone service to passengers. Tugs can report jobs completed and get new assignments without going ashore. The dispatching office can always tell which tug is nearest to a job to be done. Fishing boats, without coming ashore, can find out at which port and on what day prices are favorable. An agent ashore can immediately relay an order to a boat.

This is all made possible by means of automatic equipment located in the transmitter buildings occupied by the stations near the Atlantic shore.

WGB's transmitter room is only 13½x13½ ft. and its power room is 7x19 ft. It is of reinforced concrete with exterior in modern architectural concrete.

Concrete for the building was furnished by the Transit Mixed Concrete Corp., of Norfolk, Va., which cooperated to the fullest extent in maintaining aggregate gradation and water control. A carefully designed concrete mix properly placed in the plywood forms accounts for the splendid appearance of the walls of the structure.

Incised lettering and molded work on the building were produced by inserting plaster molds in the forms. All of this detail is sharp and clean. Walls of the station were finished with white portland cement paint.

The writer selected concrete for the building with approval of the owner, and for a specific reason. The station is subject to severe weather conditions—heavy northeast storms, unusually strong winds with horizontal rains and shifting blown sand. To overcome all conditions a homogeneous unit in concrete offered the surest and safest solution.

R. R. Richardson & Co., of Richmond and Norfolk, were general contractors.

City auditorium, at Altus, Okla., is a many-purpose community building with facilities for concerts, dramas, conventions, public meetings as well as banq women's club activities. Ed Hudgins, Oklahoma City, architect. It was built by WPA.

Municipal Auditorium—Altus, Oklaho

By Ed Hudgins, Architect*

EARLY in 1939 the city council of Altus, Okla., with the warm support of a large group of civic leaders, decided to replace the old, worn-out municipal auditorium with a new structure befitting the cultural needs of a fast-growing community. The proposition was placed before the voters of the town who approved it to the extent of $60,000 worth of bonds; and the state WPA promised assistance toward production of a $115,000 building.

Our architectural firm was commissioned to prepare plans for the new building, and we were given several general requirements and three specific ones. The building, the city officials decreed, should be of modern design and of sound construction capable of resisting long and continuous use. Specifically: the building should contain (1) an auditorium suitable for town meetings, dramatic events, musicales and moving pictures; (2) a large dining room with kitchen for civic club luncheons and banquets; and (3) room for ladies' club meetings with a kitchenette.

Preliminary sketches indicated that all of this could b contained in a building 95x130 ft. The dining room woul be located under the stage, accessible by side entranc which could be used independently of the entrances to th main auditorium, and the club room could be easily locate in space above the lobby close to the street entrance.

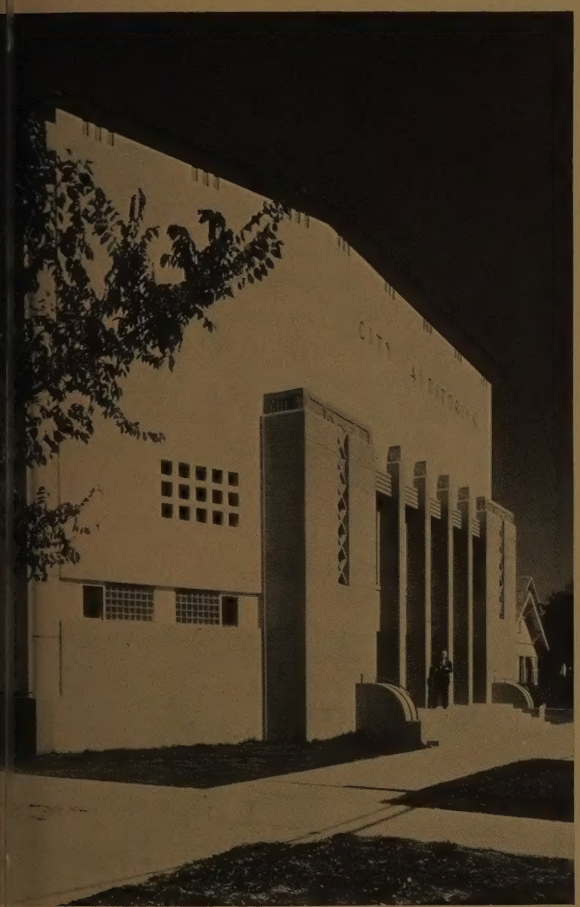
To avoid unused space within the auditorium, the ext rior walls of the building were designed to follow the co tours of the seating arrangement. Thus the front wall of th building conforms approximately to the rear row of sea which are arranged in a semihexagon, and the side wal bear in toward the proscenium. This produces a variatio in planes that adds immeasurably to the appearance of th building.

Before final plans were drawn, studies of various materia

*Oklahoma City.

re made to determine the most economical method of hieving the desired results. After an inspection trip ough Oklahoma and Kansas during which many new ildings were observed, it was decided that architectural ncrete was the only material sufficiently adaptable to et all the requirements.

Two types of architectural concrete were used for the ilding—cast stone for the pilasters and decorative detail out the main entrance, and cast-in-place concrete for the mainder of the wall areas which are generally plain sur-



rse and main entrance trim is cast stone in brown tones to contrast cream-colored concrete walls.

ces. The cast stone was made with a gravel aggregate of ch brown color which was revealed by brushing the ment paste from the surface to expose the aggregate.

The side walls step down with the slope of the auditorium or toward the rear of the building. Here, the built-up asses, which produce an interesting series of intersecting anes, house dressing rooms and mechanical equipment. se is made of all available space enclosed in the structure.

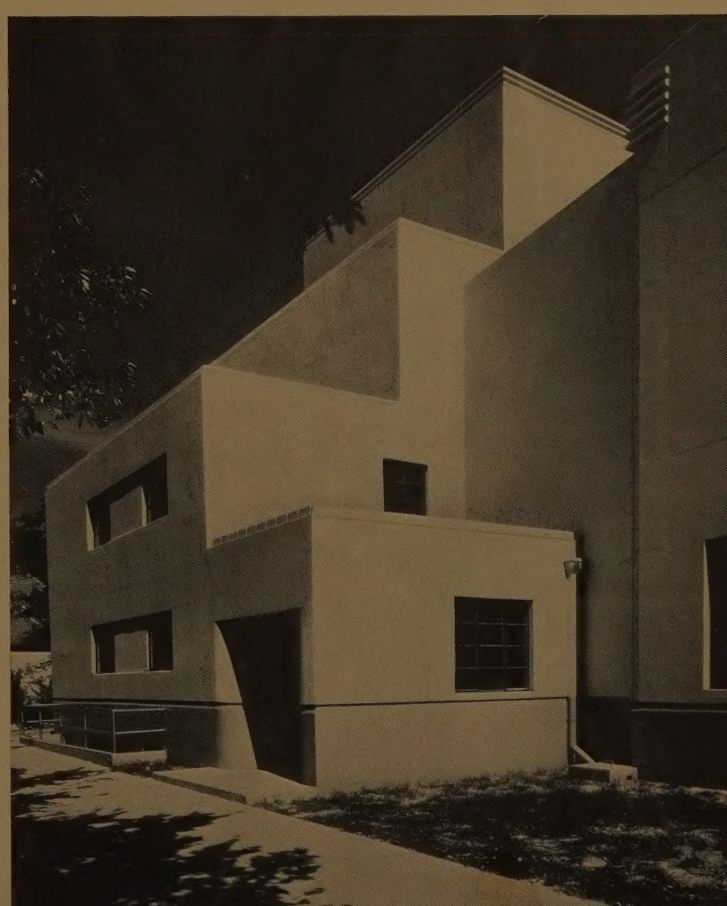
In general the concrete walls are 10 in. thick, cast against plywood on the exterior. Exterior surfaces were cleaned after the concrete was cured, and are finished with a soft, cream-colored portland cement paint. The walls are furred with 1-in. wood strips and 1-in. rigid insulation board. An oil paint was applied directly to the insulation material.

Aside from its beautiful appearance and strength, one of the determining factors in the selection of architectural concrete for this building was the abundance of local materials suitable for good concrete, which still further contributed to the moderate cost of this type of construction. More than 1,000 tons of Jackson County sand and 1,600 tons of crushed granite were used.

The building is provided with winter and summer air conditioning, a facility which, although expensive, is practically a necessity for any modern public building. The stage is equipped with the most modern lighting control units, and its 90-ft. width makes it possible to accommodate the largest dramatic or musical productions.

Altus' City Auditorium was dedicated on Sunday, October 26, 1941 at a public meeting which ended with an open house and inspection tour. The approval of the townspeople, which was so generously expressed at this time, was highly gratifying to the city officials, the architects and to the WPA workers who did so fine a job of construction.

This interesting grouping of intersecting wall planes encloses dressing rooms and mechanical equipment.



District School—Solon Springs, Wis

By Roland C. Buck, Architect*

DISTRICT School No. 1, at Solon Springs, Wis., is the first architectural concrete building undertaken by this office, and I must admit that we approached the problems of designing it with some anxiety. This may seem strange in view of the fact that we have always used concrete for bridges without question, and for structural work with full confidence in its performance. To expose concrete in the walls of a building of considerable size is, however, a different problem, and we recognized that we would have to spend time in studying recent developments in concrete design before proceeding to do a good job.

Since the climate in this region is downright snappy in winter, and changeable throughout other seasons, our principal concerns were for expansion and contraction of the walls, and for insulation. The first problem was solved through the use of expansion joints, and the second by using insulation board. After we had done our part we could only hope for a good job of concrete work for that part of the project was the responsibility of WPA.

*Roland C. Buck, Inc., architects and engineers, Superior, Wis.

The school is now in the middle of its third winter, an has so successfully withstood these severe initial tests weather and wear we are convinced that the plans and worl manship have combined to produce a very creditable jo of architectural concrete at a most reasonable cost.

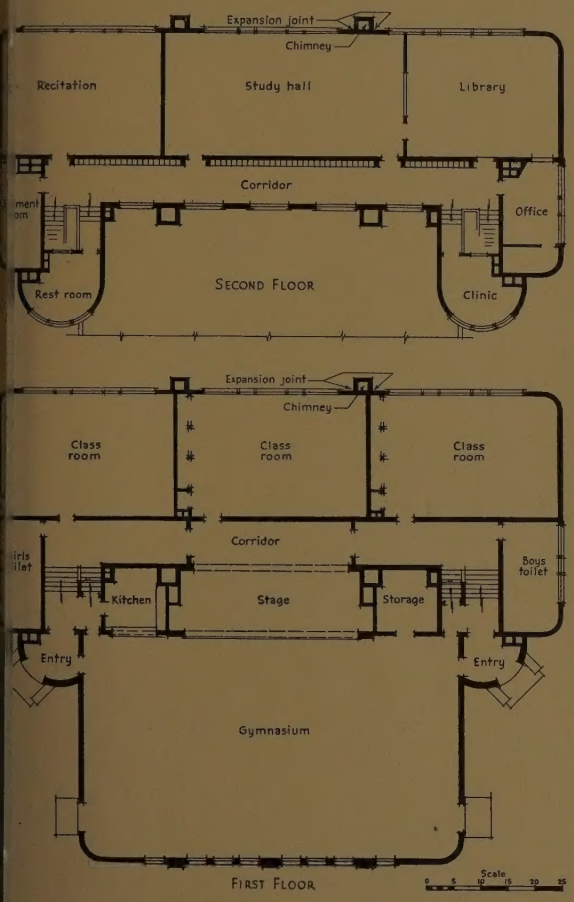
This building is more than a school. It is an all-purpos structure for high school, grade school and communit center use. Our problem was to combine the various fun tional units so that they could serve different purposes a different times, and this resulted in some interesting innova tions. One of these is the projection of the stage of th auditorium into the classroom portion of the structure s that the corridors of the building would act as accessway to classrooms which are used as dressing rooms. The ci cular stair tower is used as a principal's office and as a re room. In similar ways, every bit of space is put to use a many times as practicable.

Walls of the building are 8 in. thick, cast against plywood lined forms. Some corrugated metal was used for flutin detail with good results, while all other detail was molde

District School No. 1 at Solon Springs, Wis., serves both as school and community center. Located in a rural area its all-concrete design has given it lowest fire insurance ratings in the state. Roland C. Buck, Inc., of Superior, Wis., was architect and engineer. It was built by WPA labor.

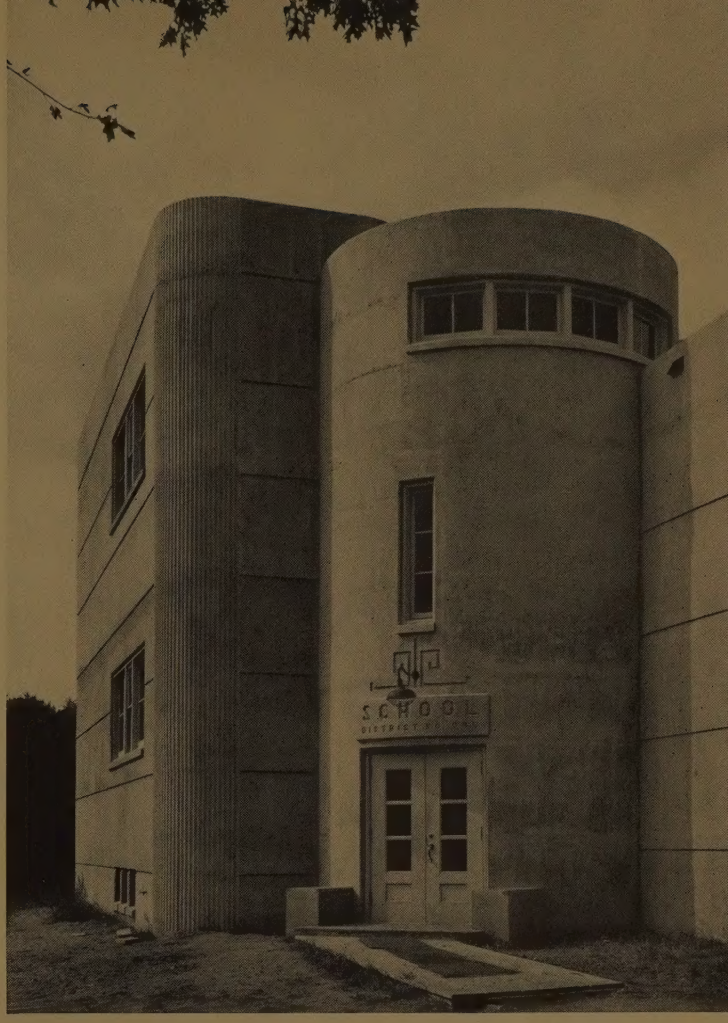
vood forms. At all points the concrete stripped from the ns in good condition and the surfaces are excellent. The sh for the exterior was a cement-sand grout applied a brush and then rubbed off with burlap to achieve a orm natural concrete color.

There was one change in plans made after the building well along in construction. It was first intended to have l framing for the auditorium, and this material was pur-sed and brought to the site. When it was discovered t by changing the auditorium roof design to concrete a



ge saving in fire insurance could be realized, the board ided on concrete. The steel was sold from the site. Even ugh some loss had to be taken in the sale of this steel the nomies to be realized from a strictly firesafe building in s rural area were far greater and will continue into the ure.

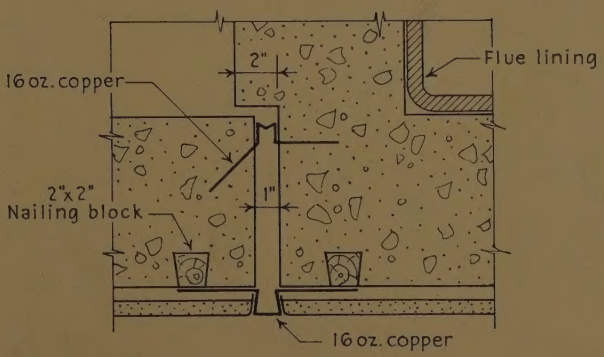
We are very well satisfied with our first project in archi-tural concrete and so is the community it serves—and it is most important. Our experiences have convinced us the many advantages obtainable through the use of



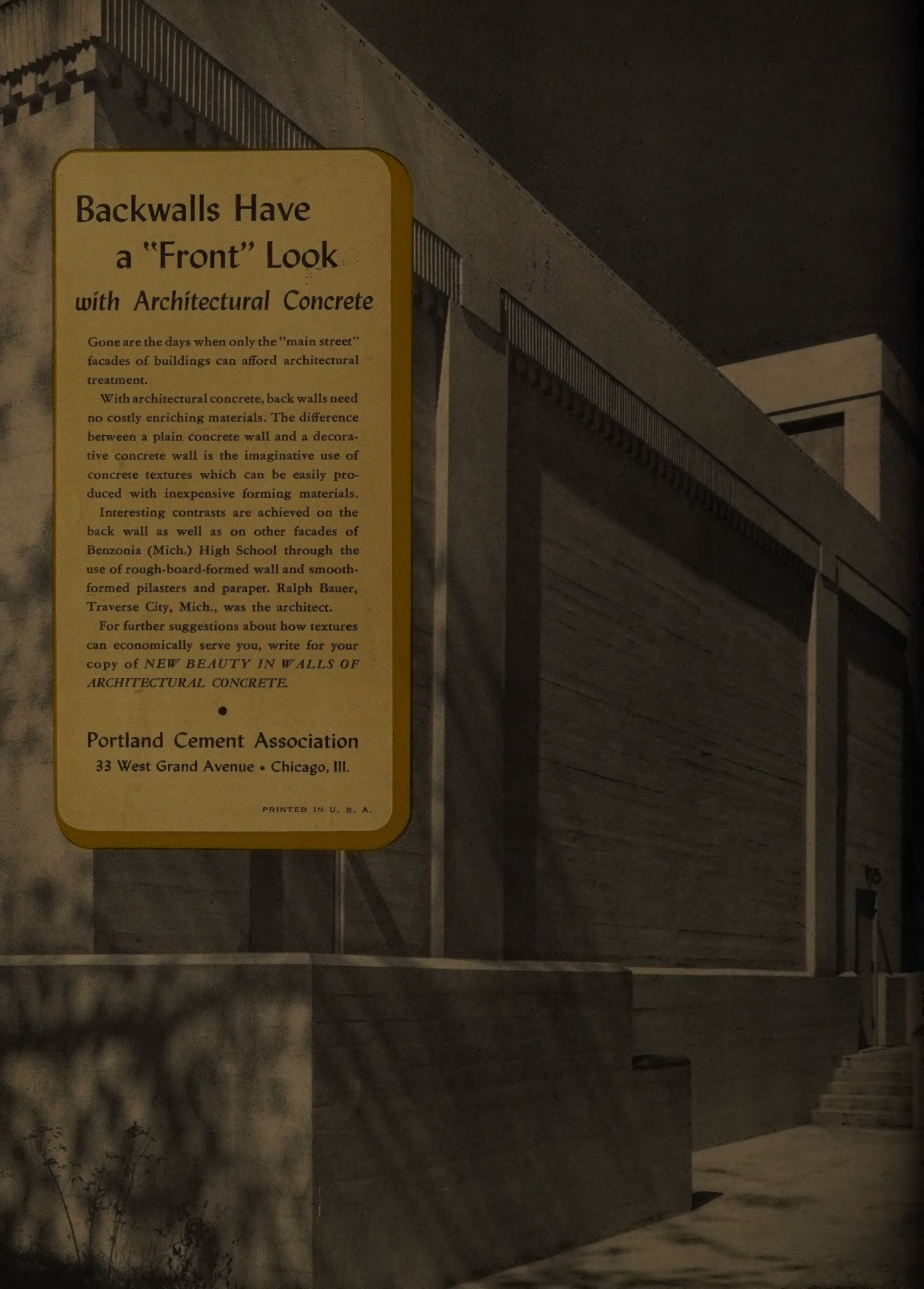
Plywood panels were used for forms with black corrugated iron employed to form the corner fluting. Exterior walls were finished by a cement-grout clean-down.

reinforced concrete, and of the superiority of good architectural concrete in wall construction.

The building was erected at a cost of about $70,000. Construction started in 1938 and was completed in the fall of 1939 in time for opening of school.



Expansion Joint at Chimney



Backwalls Have a "Front" Look

with Architectural Concrete

Gone are the days when only the "main street" facades of buildings can afford architectural treatment.

With architectural concrete, back walls need no costly enriching materials. The difference between a plain concrete wall and a decorative concrete wall is the imaginative use of concrete textures which can be easily produced with inexpensive forming materials.

Interesting contrasts are achieved on the back wall as well as on other facades of Benzonia (Mich.) High School through the use of rough-board-formed wall and smooth-formed pilasters and parapet. Ralph Bauer, Traverse City, Mich., was the architect.

For further suggestions about how textures can economically serve you, write for your copy of *NEW BEAUTY IN WALLS OF ARCHITECTURAL CONCRETE.*

•

Portland Cement Association

33 West Grand Avenue • Chicago, Ill.

PRINTED IN U. S. A.